SHAFT PARTS FOR MACHINE STRUCTURAL USE EXCELLENT IN TORSIONAL FATIGUE STRENGTH

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Abstract of **JP 8053714 (A)**

PURPOSE:To produce shaft parts for machine structural use excellent in torsional fatigue strength by subjecting shaft parts for machine structural use having a specified compsn. to forming, thereafter executing induction hardening and satisfying specified conditions. CONSTITUTION:Shaft parts for machine structural use with a prescribed shape constituted of a steel stock contg., by mass, 0.30 to O.60% C, 0.05 to 1.0% Si, 0.3 to 2.0% Mn, 0.015 to 0.05% Al, O to 0.03% S, 0 to 0.015% P, and the balance Fe with inevitable impurities is subjected to forming. Next, this shaft parts are subjected to induction hardening of<=100KHz frequency, and the ratio (CD/R) of the depth of the hardened layer CD to 50% martensitic hardness to the radius R of the induction-hardened shaft parts is regulated to 0.3 to 0.7.; Furthermore, the value of A prescribed by the formula I is allowed to satisfy every of the inequalities II to TV. Thus, the shaft parts for machine structural use exceedingly improved in torsional fatigue properties can be obtd.

$$A = [\{\pi f \times (CD/R)\}/(Hf - Hc)] \times 1000 \quad \text{I}$$

C：0．3～0．4%未満においては、1．9≦A≦16．6 II

C：0．4～0．5%未満においては、1．8≦A≦14．3 III

C：0．5～0．6%未満においては、1．7≦A≦13．6 IV